

REMARKS

The Office Action dated July 26, 2009 has been received and considered. In this reply, claim 11 is amended and claim 41 is added. Thus, claims 2-14, 16-21, 27-31, 33, and 41 are pending herein. Applicants respectfully submit that the amendments present the claims in better form for allowance. Applicants further submit that the amendments do not add new material, and support for the amendments may be found in the specification and drawings as originally filed. Further, claim 11 is amended without disclaimer and without prejudice. Applicants reserve the right to pursue the inventions of the originally filed claims and claims prior to this amendment later during the prosecution of this application or during a subsequently filed application. Reconsideration of the outstanding rejections is respectfully requested based on the following remarks.

1. Claims 2-14, 16-21, 27-31 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ignatiev et al. alone or R. Nemetschek et al. "Continuous Coated Conductor Fabrication by Evaporation" in combination with Ignatiev et al. further in combination with JP 02-118075 and JP 02-118061 still further in combination with Goyal et al., "Processing of High Temperature Superconductors" still further in combination with Rey (6,925,316). This rejection is respectfully traversed for the following reasons.

The presently claimed invention is directed towards a method of forming a superconductive device. Claim 11 calls for cleaning the substrate, electroplating nickel onto the substrate, and annealing the substrate tape. Further, the claimed invention calls for depositing a biaxial textured buffer layer upon the polycrystalline and randomly textured substrate using ion beam assisted deposition. The electroplating process reduces the surface defects, thus providing an improved substrate for the deposition of the biaxial textured buffer layer.

Turning to the cited prior art, Ignatiev discloses a process for continuously depositing a superconductor layer onto a moving tape, including cleaning the tape followed by deposition of buffer layers and the superconductor layer. Similarly, Nemetschek discloses a continuous process for depositing buffer layers and a superconductor layer. Further, Nemetschek discloses electropolishing and cleaning the substrate prior to depositing the buffer layers and the superconductor layer. JP 02-118075 and JP 02-118061 both teach plasma cleaning a first

superconductor layer prior to depositing a second superconductor layer. Goyal teaches applying a biaxially textured buffer layer on a polished metal substrate using IBAD. A superconductor layer is deposited over the biaxially textured buffer layer. Rey teaches forming magnets using stacked superconductive discs. Rey discloses that the discs can be fabricated by cleaning, polishing, annealing and texturing using established RABiTS/IBAD fabrication technologies. See Rey col. 10, lines 32-37. However, none of the references teach or suggest electroplating nickel onto the substrate. Thus, the references in combination fail to teach or suggest a method of forming a superconductive device including electroplating nickel onto the substrate.

Therefore, Applicants respectfully submit that claim 11 is not obvious over Ignatiev et al., R. Nemetschek et al., JP 02-118075, JP 02-118061, Goyal et al., and Rey. Claims 2-10, 12-14, 16-21, 27-31, and 33 depend directly or indirectly from claim 11 and are not obvious over Ignatiev et al., R. Nemetschek et al., JP 02-118075, JP 02-118061, Goyal et al., and Rey for at least the reasons as previously discussed with respect to their independent claim. Accordingly, Applicants respectfully request withdrawal of the rejections of claims 2-14, 16-21, 27-31 and 33.

2. Applicants direct the attention of the USPTO to new claim 41. Claim 41 calls for directing an oxygen free plasma to the first opposite major surface of the substrate after annealing to remove a native oxide layer from the first major surface, and depositing a biaxially textured buffer layer by ion beam assisted deposition to overlie the first opposite major surface of the substrate tape after directing the oxygen free plasma. The USPTO has previously cited JP 02-118075 and JP 02-118061 for teaching plasma cleaning of a superconductor layer. Claim 41 calls for directing the plasma to the surface of the substrate, rather than the superconductor layer. The USPTO has stated it would have been obvious to combine the teachings of JP 02-118075 and JP 02-118061 with the teachings of the other references with the expectation of improving the adhesiveness between the substrate and the superconductive coating. However, one of ordinary skill in the art would have recognized that the plasma treatment of the substrate would have had minimal effect on the adhesiveness between the substrate and the superconductive coating due to the intervening biaxially textured buffer layer. Accordingly, the USPTO has not provided a proper motivation for directing an oxygen free plasma and depositing a biaxially textured buffer layer by ion beam assisted deposition to overlie the first opposite major surface of the substrate tape after directing the oxygen free plasma.

Applicants respectfully submit that the present application is now in condition for allowance. Accordingly, the Examiner is requested to issue a Notice of Allowance for all pending claims.

Should the Examiner deem that any further action by the Applicants would be desirable for placing this application in even better condition for issue, the Examiner is requested to telephone Applicants' undersigned representative at the number listed below.

The Commissioner is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 50-3797.

Respectfully submitted,

October 26, 2009

/David A. Schell/

Date

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